

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554

In the Matter of)	
)	
Revision of Part 15 of the Commission's Rules to)	ET Docket No. 13-49
Permit Unlicensed National Information Infrastructure)	
(U-NII) Devices in the 5 GHz Band)	
)	

Comments of Sony Electronics Inc.

Sony Electronics Inc. ("Sony")¹ respectfully submits the following comments on the public notice in the above-referenced proceeding.²

Sony encourages the Commission to consider use of a geo-location database to enable spectrum sharing between proposed Unlicensed National Information Infrastructure ("U-NII") devices and Dedicated Short Range Communications ("DSRC") operations in the 5.850-5.925 GHz band.³ This database mechanism, when combined with a "detect and avoid" interference protection approach, will minimize interference to safety-critical DSRC operations, while at the same time ensuring maximum spectral efficiency for U-NII usage.

In this hybrid detect-and-avoid + database model, a DSRC road-side unit ("RSU") could connect directly to the database using either a wireless or wired Internet access point, and a vehicles on-board unit ("OBU") could connect wirelessly either to the database directly or through a connected RSU. RSUs and OBUs would need to deliver certain information to the database, including geo-location information

¹ Sony Electronics Inc. is a U.S.-based research, development, marketing, and sales subsidiary of Sony Corporation. Sony entities design, manufacture, and sell mobile products throughout the world, and have conducted extensive research and testing of next-generation wireless services, including the innovative use of shared spectrum.

² *The Commission Seeks to Update and Refresh the Record in the "Unlicensed National Information Infrastructure (U-NII) Devices in the 5 GHz Band" Proceeding*, ET Docket No. 13-49, Public Notice, 81 FR 36,501 (Jun. 1, 2016) ("Public Notice").

³ See Public Notice at 36,502. Sony also believes that a database architecture would benefit operations in the U-NII-2A (5.250 – 5.350 MHz) and U-NII-2C (5.470 – 5.725 MHz) bands by eliminating the need for dynamic frequency selection, and pending further study could offer similar benefits in U-NII-2B (5.350 – 5.470 MHz) band.

and device ID, whether the device is providing a safety-of-life or non-safety-of-life application, as well as operational parameters such as maximum equivalent isotropic radiated power (“EIRP”), channel usage, and antenna design. A U-NII device would need register similar geo-location information and operational parameters. Following successful registration, the database would calculate and provide information of available channel(s) with location-specific maximum EIRP based on protecting safety-of-life DSRC operation to U-NII device, and U-NII device chooses operation channel(s) with maximum EIRP and notifies to “geo-location database” as operational parameters. As the result, “geo-location database” approach will give good protection of safety-of-life DSRC applications from interferences of U-NII devices without hidden node problems.

The hybrid detect-and-avoid + database approach offers at least one major benefit over a detect-and-avoid approach on its own, in that it would enable reliable operations in non-line-of-sight environments. Traffic, construction, weather, or road design can interrupt line-of-sight communications, particularly for transmissions in short-range, high-frequency bands like the U-NII-4, thereby limiting the effectiveness of a detect-and-avoid system. Even in operating environments that allow for line-of-sight communication, a database would offer the necessary system redundancy to better guarantee delivery of safety-critical communications. As an added benefit, a hybrid approach would enable more robust unlicensed U-NII operations, by managing interference through the adjustment of operational parameters rather than avoiding occupied frequencies altogether. Finally, this hybrid approach could be implemented through less-costly firmware changes to existing U-NII or DSRC hardware and chipsets, rather than the more extensive and costly modifications required for a “re-channelization” approach.

As the Commission notes, database spectrum management architectures are in the process of implementation for white space devices in the TV bands, and for Citizens Broadband Radio Service

operations in the 3.5GHz band.⁴ Sony encourages the Commission to borrow from those experiences and allow the best possible levels of usage, coordination, and protection between U-NII and DSRC operations, through the implementation of a hybrid detect-and-avoid + database architecture.

Respectfully Submitted,

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⁴ Id.